

What Is Claimed Is:

1. A wet stripping apparatus for removing unwanted film layers from a wafer surface comprising:

a tank body for holding a volume of a stripper solution therein;

a wafer holder for holding at least one wafer therein in a vertical position such that a planar surface of the wafer is parallel to a vertical tank wall of said tank body; and

means for reciprocally moving said wafer holder in an up-and-down motion with said at least one wafer immersed in said stripper solution at a frequency of not more than 100 cycle/min.

2. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1 further comprising heating means in said tank body for heating said stripper solution.

3. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1, wherein said wafer holder is a front open unified pod (FOUP) for holding up to 25 wafers.

4. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1, wherein said wafer holder is a standard mechanical interface (SMIF) pod.

5. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1, wherein said means for reciprocally moving said wafer holder is an air cylinder assembly.

6. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1, wherein said means for reciprocally moving said wafer holder is an air cylinder assembly that moves at a frequency of about 60 cycle/min.

7. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 2, wherein said heating means is an electrical heating means.

8. A wet stripping apparatus for removing unwanted film layers from a wafer surface according to claim 1, wherein said stripper solution comprises dimethyl sulfoxide (DMSO).

9. A method for removing unwanted film layers from a wafer surface by wet stripping comprising the steps of:

providing a tank body and filling the tank body with a volume of a stripper solution;

providing a wafer holder holding at least one wafer therein in a vertical position with a planar surface of the wafer parallel to a vertical tank wall of said tank body;

mounting said wafer holder in said tank body immersed in said stripper solution; and

moving said wafer holder reciprocally in an up-and-down motion with said at least one wafer immersed in said stripper solution at a frequency of not more than 100 cycle/min.

10. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the step of filling the tank body with a stripper solution that comprises dimethyl sulfoxide (DMSO).

11. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the step of filling the tank body with a stripper solution that comprises dimethyl sulfoxide (DMSO) and tetramethyl ammoniumhydroxide (TMAH).

12. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the step of mounting said wafer holder in said tank body and soaking said at least one wafer in said stripper solution stationarily for at least 3 min.

13. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the step of mounting said wafer holder in said tank body and soaking said at least one wafer in said stripper solution stationarily for at least 3 min and then moving said wafer holder up-and-down at a frequency of not more than 100 cycle/min.

14. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the steps of:

    rinsing said wafer holder and said at least one wafer in a quick dump rinse (QDR) process; and

    spin drying said at least one wafer.

15. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 9 further comprising the step of moving said wafer holder reciprocally in an up-and-down motion for a length of time sufficient to remove all unwanted film layers from said wafer surface.

16. A method for removing unwanted film layers from a wafer surface by wet stripping comprising the steps of:

    providing a tank body and filling the tank body with a volume of a stripper solution;

    providing a wafer holder holding at least one wafer therein in a vertical position with a planar surface of the wafer parallel to a vertical tank wall of said tank body;

mounting said wafer holder in said tank body and immersing said at least one wafer stationarily in said stripper solution for a time period of at least 3 min; and

moving said wafer holder reciprocally in an up-and-down motion with said at least one wafer immersed in said stripper solution at a frequency of not more than 100 cycle/min.

17. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 16 further comprising the step after said moving step of immersing said at least one wafer stationarily in said tank body for a time period of at least 10 sec.

18. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 16 further comprising the step of filling the tank body with a stripper solution that comprises dimethyl sulfoxide (DMSO).

19. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 16 further comprising the steps of:

rinsing said wafer holder and said at least one wafer in a quick dump rinse (QDR) process; and

spin drying said at least one wafer.

20. A method for removing unwanted film layers from a wafer surface by wet stripping according to claim 16 further comprising the step of moving said wafer holder reciprocally in an up-and-down motion for a length of time sufficient to remove all unwanted film layers from said wafer surface.